FC Reports
1944

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Forest Insect Laboratory
Coeur d'Alene, Idaho

Project H-1-22 (1) Date December 13, 1944 Author A. L. Gibson, Assistant Entomologist

TITLE

SIXTEENTH ANNUAL SURVEY OF
MOUNTAIN PINE BEETLE ACTIVITY ON THE
COEUR D'ALENE NATIONAL FOREST
1944

by
Archie L. Gibson
Assistant Entomologist

COMMENTS AND RECOMMENDATIONS

by
James C. Evenden
Senior Entomologist

R-1
RECEIVED
DEC 21 1944

Forest Insect Laboratory
Coeur d'Alene, Idaho
December 13, 1944

U. S. GOVERNMENT PRINTING OFFICE 8—9742

SUBJECT—

INDEX NO.—

SIXTEENTH ANNUAL SURVEY OF MOUNTAIN PINE BEETLE ACTIVITY ON THE COEUR D'ALENE NATIONAL FOREST 1944

by
Archie L. Gibson, Assistant Entomologist

The determination of mountain pine beetle activity on this forest, and incidentally on some adjoining areas of the Cabinet National Forest, was divided into two periods during 1944. From June 20 to 24 a survey of red-top trees was made on certain areas of the Coeur d'Alene and of adjoining areas of the Cabinet National Forests. The main objective of this early-season examination was to note any incipient outbreaks of the mountain pine beetle in western white pine on areas which had not been examined for a number of years, as well as to observe general forest insect conditions.

The later survey was for the purpose of securing some idea of the amount of infestation by the mountain pine beetle as a result of attacks during the current season. Only such areas were surveyed as were believed to support a potentially serious infestation as indicated by previous annual surveys or the red-top examination made earlier in the season.

In making the red-top survey, observations were made from vantage points and look-outs, binoculars being used to identify, and, where necessary, count the more distant red-top trees. Where the latter were in sufficient numbers to warrant, counts were made to determine the advisibility of subsequent survey.

The data secured and comments concerning the areas examined during this red-top survey, are listed in the following tabulations:

RESULTS OF RED-TOP SURVEY IN JUNE OF 1944 ON

Coeur d'Alene National Forest

Area	Acreage	Infestation	Comments
Eagle Cr. (E. Fk.)	2700	Light	Believed to be slightly increasing.
Toboggan Cr.	500	Light	On about 500 acres 50 trees counted. Survey suggested later in season.
Eagle Cr. (W. Fk.)	1200	Very light	Some concentration of infestation at mouth of Eagle Creek on area soon to be logged.
Clee Creek	--	None	--
Bobtail Creek	--	Light	In vicinity of Bobtail campground.
Lost Creek	1200	Light but increasing	Sufficient infestation to warrant survey later in season.
Fall Cr. (S. Fk.)	1800	Light	Fairly even distribution of single trees over entire drainage.
Clinton-Windfall Creeks	2000	Light	Possibly increasing. Later inspection suggested.
Dahlman and Mosquito Creeks	--	Very light	--
Faset Pk. (vicinity)	--	None	--
Jackknife Pk. (vicinity)	--	None	--
Iron Creek	--	Light	--
Stewart Creek	--	Light	--
Callus Creek	--	Light	--

Cabinet National Forest

Area	Acreage	Infestation	Comments
Minton Peak	--	--	No timber of commercial importance close to peak.
Marten Cr. (N. Branch)	1300	Light	Possibly increasing slightly.
Delyle Creek	--	None	--

No observations were made in the vicinity of Spion Kop lookout on the Coeur d'Alene National Forest because the road was blocked by many windthrown trees. The attraction exerted by windthrown western white pine for the mountain pine beetle may make it advisable to inspect that area in 1945 to note any build-up in infestation in such material, as well as to examine the area in the vicinity of Spion Kop Lookout.

This red-top survey revealed only three areas which, in the opinion of the writer, warranted further action in the form of inspection or survey later in the season. They were Toboggan Creek on the Eagle Creek drainage, Lost Creek, and Clinton-Windfall Creeks. Results of the fall survey are given in succeeding pages of this report.

Data from the Fall Survey

Continued into 1944, the same conditions that limited surveys in 1943, curtailment of funds and reduction of personnel, made it necessary to confine examinations to those units where a potentially serious infestation was believed to exist. It is thought that all major areas of mountain pine beetle activity were located. Data from the fall survey, including some of the areas recommended for inspection and survey following the earlier count of red-top trees, are summarized and compared with that of previous years, in the following tabulation. It must be emphasized that the size of the samples on which the estimates of infestation are based, although believed to be representative, are too small to insure significant accuracy. However, estimates, comparisons, and comments have been made, but are naturally dependent upon the aforementioned limitation.

MOUNTAIN PINE BEETLE INFESTATION IN WESTERN WHITE PINE
COEUR D'ALENE NATIONAL FOREST
1944

Unit	Acreage	Infested trees per acre in 1944	1943	1942	1941	Infested trees on unit in 1944	1943	1942	1941	Percent of stand killed in 1944	1943	1942	1941
N. Yellow Dog	840	.45	.04	.22	.06	378	34	184	50	.9	.1	.8	.1
Yellow Dog R.	2140	.95	.83	.66	.62	2033	1780	1412	1326	1.7	1.9	1.4	1.9
Yellow Dog Creek	4120	.39	.51	.11	.29	1563	2092	433	1195	.6	.9	.2	.5
Downey Creek	4160	.50	1.06	.43	.52	2063	4429	1789	2163	1.1	1.8	.7	.9
Sissons	4700	.42	.62	.50	.51	1979	2928	2350	2397	1.2	2.0	1.6	1.6
Lost Creek	2000	.15	no data			308	no data			.5	no data		
Clinton Creek	200	.47	Data included in Cabin Cr. Unit			94	Data included in Cabin Cr. Unit			2.9	Data included in Cabin Creek Unit		
Totals	18,160					8,418	14,841	6,188	7,131				

Inspection of the preceding data reveals a possible increase in infestation over that of the preceding year on two of the five units for which there is comparative data.

Detailed discussion of the unit data appears in the following pages.

Yellow Dog Creek Unit	Acreage 4120
Attacked trees per acre	.385
Percent of stand killed	.6
Infested trees on unit	1563

The character of the infestation on the unit has changed in some respects since 1943. The number of infested windfalls have risen from 16 to 23 percent of the total trees attacked. Pitched-out and trees infested on a green side which had been left from attacks of previous years, have decreased from 26 to about 15 percent. Heavily attacked trees have increased from 32 to 60 percent. The last condition, together with the high ratio of heavy brood in windfalls, indicates a potentially large increase for 1945.

By dividing this unit into two areas a better idea of actual conditions is obtained. An area of about 1,120 acres in the eastern part of the unit contains a much heavier infestation than that on the western 3,000 acres. The differences are shown in the following tabulation.

		Attacked Trees		Green Stand of WWP	
	Acreage	Per Acre	On Area	Per Acre	% Attacked
Eastern Area	1120	.785	879	95.0	.8
Western Area	3000	.228	684	50.1	.45

From the preceding figures it is seen that the eastern area contains a concentration of infestation in contrast to a decidedly lighter outbreak on the western area. On the latter the bulk of the infestation is limited more to ridges and areas with exposures from east to south to west. On the eastern area the infestation is more general but heaviest on the same exposures.

Although the data represents a general decrease in infestation for the unit, limited areas are still suffering heavy losses. As much

as 50 percent of the white pine have been killed on parts of sec. 16, T. 51 N., R. 3 E.

Yellow Dog River Unit	Acreage 2140
Attacked trees per acre	.95
Percent of stand infested	1.7
Infested trees on unit	2033

An increase in infested trees per acre and total infested on the unit, is noted for 1944, over the preceding year. The data secured does not indicate any concentration of infestation on exposed slopes. Although there is insufficient data to prove the point, it is a possibility that depletion of the exposed slopes has reached the point where the remaining stand is more or less resistant to attack and the mountain pine beetle is moving into adjoining stands which would normally be but lightly infested. Losses have been 50 percent or more on these east, to south, to west slopes.

North Yellow Dog Unit	Acreage 840
Attacked trees per acre	.45
Percent of stand infested	.9
Infested trees on unit	378

The data for this unit shows a decided increase over that of 1943, furthermore, heavy brood in over 75 percent of the infested trees, indicates a probable increase in 1945.

Downey Creek Unit — Acreage 4160

Over this unit as a whole there seems to have been a decided decrease. However, about 24 percent of the area contains an estimated 44 percent of the infestation. This more heavily infested area is at the northern end of the unit in sections 21, 22 and 23. Losses there, on sites having exposures toward the east, south, or west, have been very heavy in the recent past, accounting for as much as 50 percent of the merchantable volume of western white pine.

The same exposures on the more lightly infested larger area also have the greatest concentration of losses from the mountain pine beetle. The data for the two areas is shown in the following tabulation.

Downey Creek Unit

	Acreage	Attacked Trees Per Acre	Attacked Trees On Area	Green Stand of WWP Per Acre	Green Stand of WWP % Attacked
Northern Area	1000	.91	910	48.4	1.85
Southern Area	3160	.365	1153	43.1	.84
Totals or average	4160	.50	2063	44.4	1.1

Sissons Unit — Acreage 4700

Attacked trees per acre	.42
Percent of stand killed	1.2
Infested trees on unit	1979

Infestation varies considerably on this unit, with the heaviest concentration in the vicinity of Dry Creek. Another heavy concentration was noted at the head of Stevens and Venus Creeks, where over 3 percent of the stand has been attacked in the current year, amounting to over 1½ trees per acre. The high slopes showed only a light infestation but at lower elevation the average infestation is about 2.5 percent of the stand.

This unit also has areas on which recent past losses from windthrow and insects have been so heavy as to destroy a large part of the merchantable volume.

See page 10 for additional information

Lost Creek — Acreage 2000

Attacked trees per acre	.154
Percent of stand attacked	.5
Infested trees on unit	308

Of the area of approximately 2,000 acres, to which it is believed these data will apply, the southwestern portion seems to have the major amount of infestation. This infested area is in T. 51 N., R. 5 E. and includes the SW¼ of sec. 7, the northwest part of the NW¼ of sec. 18 and in T. 51 N., R. 4 E. the south half of sec. 12, part of the north half of sec. 13 and part of the east half of sec. 14. The remainder of the timbered unit concerned adjoins the areas just designated.

The timber near the northern end of this unit is more mature and of poorer quality than that further southwest and at lower elevations. It is this better timber at the lower elevations that has most of the infestation. About 15 percent of the stand has already been killed by the mountain pine beetle.

Clinton Creek	Acreage 200
Attacked trees per acre	.47
Percent of stand attacked	2.9
Infested trees on unit	94

This area, near the mouth of Clinton Creek, suffered heavy damage a few years ago from a severe wind. The large, overmature, windthrown white pine, which were attacked in the succeeding years, have now been abandoned by the mountain pine beetle and the latter's activity has almost wholly shifted to standing timber on the nearby hillsides. In an area of approximately 200 acres, surrounding and containing the blowdown, there are estimated to be 94 trees which were attacked in 1944. About 70 percent of these trees contain a heavy brood, indicating a potential increase in 1945.

Toboggan Creek on Eagle Creek drainage showed too light an infestation in the remaining western white pine, to be considered serious. The few infested trees seem to be dying chiefly as a result of a change to unfavorable site conditions following logging in 1927-28, with mountain pine beetle attack merely a contributing rather than the primary cause of death. Considerable loss is also occurring in Douglas fir and to a lesser extent in lowland fir.

Insufficient infestation was found in western white pine on the headwaters of the Clinton-Windfall Creek area to warrant a survey. The upper part of these two drainages showed only scattered red-top trees, many of which were Douglas fir.

There is a general distribution of red-top single trees over the entire south fork of Fall Creek. The infestation per acre on this cut-over drainage is too light to be considered serious. Douglas fir comprise a considerable proportion of the total number of red-tops.

Deception Creek Unit

Wilderness Area

An extensive examination of this area showed a marked increase in the number of trees attacked by the mountain pine beetle in 1944. Trees attacked averaged slightly over 20 inches in diameter and contained heavy brood. Infestation in 1944 amounts to about .8 percent

Filed "S-Control-CdA-Insect"

of the total western white pine stand. The increase in infestation in this area may be the forerunner to more serious losses from the mountain pine beetle.

1/ ~~Selective~~ Clear-Cut cutting area

See Evenden's letter of Jan 12. This figure does not apply to selective cut area

In this area there would seem to be a marked increase in the severity of this years infestation of the mountain pine beetle. The approximate .7 percent of the stand attacked in 1944 indicates the losses are becoming serious.

Laverne Creek

Attacked trees are few in this area, amounting to less than .2 percent of the western white pine. The new attacks were also light, indicating a normal infestation. Past losses have not been heavy, in this chiefly heavy pole stand.

Other Forest Insects

The Douglas fir bark beetle is active on all areas examined and causing considerable loss. On the Lost Creek and Sissons Units infestation was more noticeable than on other areas. No counts were made of infested Douglas fir but it is believed they will exceed white pine losses.

Losses in lowland fir were general but not heavy on the units examined and surveyed this season.

Defoliation by the larch saw-fly was light or absent on the areas examined this season, in contrast to the general and much heavier defoliation in the last few years.

Discussion

Persistent losses from the mountain pine beetle for a number of years on parts of some of the units, has reduced the volume of western white pine on such areas as much as 50 percent. Persistence of these losses at the same rate for a few more years, will decidedly reduce the remaining volume of mature western white pine timber on such areas. Not only has volume loss been great but the trees killed were the largest and contained better grades of lumber than the smaller trees remaining. It is quite apparent that much of this mature and over-mature western white pine timber is quite susceptible to mountain

pine beetle attack and that a continuance of these losses may be expected until such material has been eliminated.

Brood conditions indicate a decided increase in infestation may occur in 1945.

Additional Information Concerning the Sissons Unit

In reviewing this report the need for more detailed information concerning the Sissons Unit was rather apparent. On this unit an approximate 6 percent sample was run on an area of about 1,000 acres. The sample revealed an infestation of about .83 trees per acre in contrast to an average of .42 for the 4,700 acre unit as a whole. Within the smaller area are two still more heavy concentrations of outbreak with lighter infestation elsewhere. However, the data was insufficient to definitely delineate the boundaries of these "hot-spots" more than to say that they are on the lower slopes of Dry Creek and vicinity, and on the Stevens - Venus Creek drainages. The average infestation of 2.5 percent of the stand in 1944, reveals the seriousness of the threat to the timber on that unit.

SUMMARY AND RECOMMENDATIONS

by
James C. Evenden

During the past few years, there has been no great change in the status of the mountain pine beetle infestation on Coeur d'Alene National Forest. However, there are a number of potentially dangerous situations which, if white pine stands are to be preserved for future cutting, must receive proper consideration. In fact one can truthfully say that in the areas Mr. Gibson has described in his report, infestations exist which in a very few years, can and eventually will, build to destructive epidemic strength. The occurrence of such destructive epidemics is difficult to foresee with any great degree of accuracy. Of the factors which contribute to the occurrence of epidemic outbreaks the susceptibility of the timber stand is of the greater importance. Past and present losses in such areas as Yellow Dog, Downey Creek, Sissons Unit and others should be ample evidence of the susceptibility of the timber stand in question.

Infestations of the mountain pine beetle in western white pine can be held to a low point of severity through the institution of artificial control. On the other hand, the institution of control must not be considered as a cure-all for all future insect ills. It is economically impractical to eliminate this destructive insect enemy of our pine forests and as long as there are insects within an area, and as long as there are trees which are susceptible to their attacks, infestations will rebuild to former degrees of severity.

Within the forests of the general Yellow Dog and Downey Creek Area, there is an annual loss of white pine which, although not startling for any one year, when taken over a period of time, often becomes a large percent of the original volume. One hesitates to make a statement as to the percent of the original timber value that has been lost on these areas during the past 20 years although it will prove to be much greater than anticipated. The institution of artificial control is an expensive procedure and at this time an almost impossible one if large operations are contemplated, because of the labor involved. The justification of such action is some what contingent upon the period the timber is to be held before cutting. If held for any period of time and if at the time of harvest a volume of white pine comparable to that which exists at the present time is to be available to the operator, then adequate control must be instituted and maintained control conducted whenever the situation justifies such action. If this is not

done, a chance is taken that at the time of cutting the anticipated white pine volume will be materially reduced.

Perhaps special consideration should be given to the Sissons and Clinton Creek Units. On the Sissons Unit, there is an area of some 1,000 acres on which Mr. Gibson considers there are from 800 to 900 infested trees. This situation resulted from a white pine blow-down of some few years past. In the Clinton Creek Unit there is an area of some 200 acres which supports an infestation of some 100 trees, which also originated from a white pine blow-down. Although the Clinton Creek infestation is not overly severe at this time, this concentration of beetles threatens adjacent timber stands where the present infestation is not above a normal condition. To treat the infestation within these two areas in the spring of 1945, would require an expenditure of some $8,000 to $10,000 and a crew of 40 to 50 men.

I realize full well the impracticability at this time of instituting large scale control operations even though moneys are made available. However, this condition does not influence the entomological aspects of these situations and I have based my statement accordingly. On this basis control measures should not only be instituted in the Sissons and Clinton Creek areas but the Downey, Yellow Dog, and upper Steam Boat Creek as well.